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Report



**PROCUREMENT OF THE PROPELLER BLADE HEATERS
FOR THE C-130 AND P-3 AIRCRAFT**

Report No. D-2000-099

June 12, 2000

This special version of the Report has been revised
to omit data considered "BFGoodrich Proprietary".

**Office of the Inspector General
Department of Defense**

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Acronyms

ALC	Air Logistics Center
DCAA	Defense Contract Audit Agency
DISC	Defense Industrial Supply Center
DLA	Defense Logistics Agency
DSCR	Defense Supply Center Richmond
FAR	Federal Acquisition Regulation
NSN	National Stock Number
VPV	Virtual Prime Vendor



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202

June 12, 2000

MEMORANDUM FOR ASSISTANT SECRETARY OF THE AIR FORCE
(FINANCIAL MANAGEMENT AND COMPTROLLER)
DIRECTOR, DEFENSE LOGISTIC AGENCY

SUBJECT: Audit Report on the Procurement of the Propeller Blade Heaters for the C-130 and P-3 Aircraft (Report No. D-2000-099)

We are providing this redacted audit report for public release. This report is one in a series involving commercial and noncommercial pricing of spare parts. We considered management comments on a draft of this report when preparing the final report.

DoD Directive 7650.3 requires that all recommendations be resolved promptly. We have not received comments on Recommendation 3 from the Commander, Warner Robins Air Logistics Center.

We provided the For Official Use Only version of the report to BF Goodrich for its comments on information that could be company confidential or proprietary. BF Goodrich comments were considered in preparing the redacted report for public release.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Terry L. McKinney at (703) 604-9288 (DSN 664-9288) or Mr. Henry F. Kleinknecht at (703) 604-9324 (DSN 664-9324). See Appendix F for the report distribution. The audit team members are listed inside the back cover.

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Office of the Inspector General, DoD

Report No. D-2000-099
(Project No. 8CF-1003.02)

June 12, 2000

Procurement of the Propeller Blade Heaters for the C-130 and P-3 Aircraft

Executive Summary

Introduction. This report is one in a series involving the pricing of commercial and noncommercial spare parts. During a previous audit, we identified prices for C-130 aircraft propeller blade heaters as a topic warranting further review. The virtual prime vendor contract was issued to United Technologies Corporation, Hamilton Standard Division. This report addresses pricing problems with the C-130 and P-3 blade heaters. In 1998, DoD paid \$1.4 million for C-130 and P-3 blade heaters. Both blade heaters are manufactured by BF Goodrich and are procured on the Hamilton Standard virtual prime vendor contract through Derco Aerospace, subcontractor to Hamilton Standard. The Defense Supply Center Richmond awarded and used the virtual prime vendor contract to procure the C-130 blade heaters. The Defense Industrial Supply Center started using the virtual prime vendor contract to procure the P-3 blade heaters in 1999. Prior to the virtual prime vendor contract, the P-3 blade heaters were procured directly from BF Goodrich. In June 1999, United Technologies Corporation acquired Sundstrand Corporation and merged its Hamilton Standard division creating a new company, Hamilton Sundstrand.

Objectives. The primary audit objective was to determine whether the Defense Logistics Agency paid fair and reasonable prices for the C-130 and P-3 blade heaters procured as sole-source commercial items from Hamilton Standard.

Results. The Defense Logistics Agency did not effectively negotiate fair and reasonable prices for the C-130 and P-3 blade heaters. The Defense Logistics Agency supply centers paid Hamilton Standard between \$927,483 to \$1.0 million or from 123.6 to 147.7 percent more than fair and reasonable prices. We calculate that the Defense Logistics Agency supply centers can reduce total ownership costs for their customers from between \$5.6 to \$6.0 million during FYs 2001 through 2006 by using a combination of both cost- and price-based acquisition tools and negotiating a long-term contract using commercial practices with BF Goodrich. For details of the audit results, see the Finding section of the report.

Summary of Recommendations. We recommend that the Director, Defense Logistics Agency require that acquisition officials at the Defense Logistics Agency supply centers seek to negotiate better prices for C-130 and P-3 aircraft propeller blade heaters. Specifically, we recommend that the Director, Defense Logistics Agency require acquisition officials to establish ownership rights to the technical data and determine if

Hamilton Sundstrand is entitled to a licensing fee for royalty payments. Accordingly, we recommend that the Director require acquisition officials to establish a fair and reasonable licensing fee, if applicable. We recommend that the Director require acquisition officials to determine the most effective means of logistics support and eliminate the use of dealers that provide no added value. We also recommend that the Director make contracting officers aware that means other than commercial pricing need to be used for C-130 and P-3 parts to ensure the integrity of prices and establish price reasonableness. We recommend that the Commander, Warner Robins Air Logistics Center, require acquisition officials to use the fair and reasonable unit prices for any cost models that show life cycle cost avoidance and verify the ownership of the technical data rights before providing any prototype development funds to Hamilton Sundstrand.

Management Comments. The Director, Defense Logistics Agency concurred or partially concurred with each recommendation and stated that they are renegotiating the price, seeking a voluntary refund, and developing alternate sources of supply for the blade heaters. The Defense Logistics Agency is investigating the ownership rights to the technical data and attempting to determine royalty entitlements. The Defense Logistics Agency is also establishing a strategic alliance with Hamilton Sundstrand to determine the most effective means of logistics support for the C-130 and P-3 aircraft propeller blade heaters. The Director also stated that the blade heater represented only one part and the report did not consider the overall potential costs savings from the virtual prime vendor program. A discussion of management comments is in the Finding section of the report, and the complete text is in the Management Comments section.

Audit Response. The Defense Logistics Agency comments were responsive. Issues related to the virtual prime vendor contract with Hamilton Sundstrand are discussed in more detail in our Report No. D-2000-098, "Spare Parts and Logistics Support Procured on a Virtual Prime Vendor Contract," March 8, 2000. We have not received comments on Recommendation 3 from the Commander, Warner Robins Air Logistics Center.

Table of Contents

Executive Summary	i
Introduction	
Background	1
Objective	2
Finding	
Commercial Prices for Propeller Blade Heaters	3
Appendices	
A. Audit Process	19
Scope	19
Methodology	20
B. Prior Coverage	21
C. Production History of C-130 and P-3 Aircraft	22
D. Purchasing Environments	24
E. Laws and Regulations for Commercial Items	25
F. Report Distribution	26
Management Comments	
Defense Logistics Agency	28

Background

Spare Parts Audits. This report is one in a series involving prices paid for commercial and noncommercial spare parts. The first two reports covered Defense Hotline cases involving commercial pricing of spare parts. The first report discussed an allegation that the Defense Logistics Agency (DLA) paid a contractor significantly higher catalog prices for commercial parts than the cost-based prices previously paid for the parts. The second report discussed an allegation that DLA was procuring commercial and noncommercial parts from another contractor on a sole-source basis. The sole-source prices were significantly higher than the competitive (breakout) prices previously paid by DoD for the parts. Both allegations were substantiated.

This report and three other reports involving commercial pricing of spare parts resulted from audits that were initiated because of the problems identified in the first two audits. One report discussed how the use of cost-based prices was an effective means to procure sole-source commercial spare parts on one contract. The other reports discussed less effective contracting strategies.

Follow-On to Virtual Prime Vendor Contract. During the audit of the virtual prime vendor (VPV) contract with Hamilton Standard, questions about the reasonableness of the price for the blade heaters for the C-130 and P-3 aircraft came to our attention. As a result, we performed a separate audit for the blade heaters, national stock numbers (NSNs), [REDACTED] [REDACTED]

Figures 1 and 2 are photographs of the C-130 aircraft blade heater. The blade heater consists of electrical heat conductors made of thin wires embedded between two pieces of flat rubber.

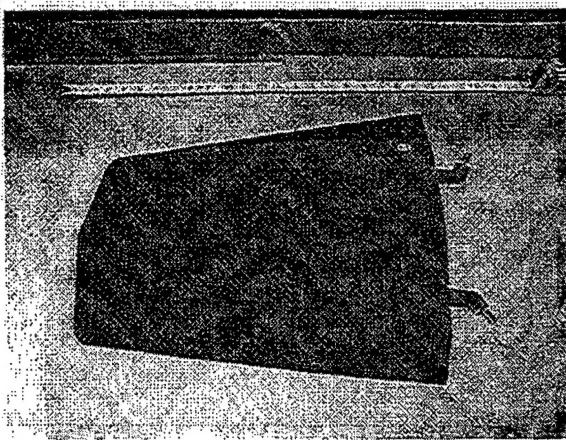


Figure 1. C-130 Aircraft Blade Heater

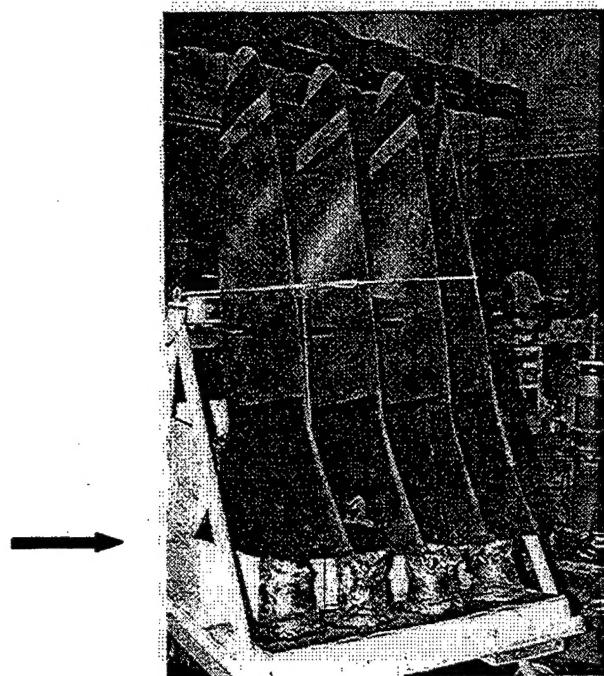


Figure 2. Blade Heater Mounted on Aircraft Propeller Blades

In 1998, DoD paid \$1.4 million for 2,716 C-130 and 280 P-3 blade heaters. The C-130 blade heaters were procured from Hamilton Standard on the VPV contract and were manufactured by BF Goodrich. Hamilton Standard subcontracted with Derco Aerospace for the management and logistics support of the blade heaters. The P-3 blade heaters were also manufactured by BF Goodrich and procured both on the VPV contract and directly from BF Goodrich. The Defense Supply Center Richmond (DSCR) awarded and used the VPV contract to procure the C-130 blade heaters. The Defense Industrial Supply Center (DISC) started using the VPV contract to procure P-3 blade heaters in 1999.

Objective

The primary audit objective was to determine whether DLA obtained fair and reasonable prices for the C-130 and P-3 aircraft propeller blade heaters procured as sole-source commercial items from Hamilton Standard. See Appendix A for a discussion of the audit scope and methodology, and Appendix B for a summary of prior coverage related to the audit objectives.

Commercial Prices for Propeller Blade Heaters

DLA contracting officers did not effectively negotiate fair and reasonable prices for the C-130 and P-3 aircraft propeller blade heaters (blade heaters) procured as sole-source commercial items from Hamilton Standard and BF Goodrich. Effective negotiations did not occur because DLA contracting officers:

- failed to conduct negotiations for the blade heaters after the commercial item determination was made and accepted the significantly higher commercial prices without obtaining some assurance that the prices were reasonable (for example, requesting cost data);
- failed to challenge the contractor on the rights to the technical data for the blade heaters and excluded solicitation provisions for royalty information, and thus were unaware of the excessive licensing fees for royalty payments that BF Goodrich paid Hamilton Standard; and
- used unnecessary third party or DLA logistic support rather than using the actual manufacturer.

As a result, the DLA supply centers paid between \$927,483 and \$1.0 million or from 123.6 to 147.7 percent more than fair and reasonable prices for the blade heaters procured from Hamilton Standard and BF Goodrich. In addition, Warner Robins Air Logistics Center (ALC) has initiated actions to provide research and development funds to Hamilton Standard for the reengineering of a new (thermion) blade heater.

Commercial Item Determination and Higher Prices

Commercial Item Determination. In April 1992, the DLA contracting officer requested that the Defense Contract Audit Agency (DCAA) verify the sales mix for the C-130 blade heater because BF Goodrich (formerly Safeway Products, Inc.) had claimed a commercial item exemption from cost or pricing data. DCAA reviewed sales data for the blade heater during 1990 and 1991 and determined that the part satisfied the criteria for exemption since 100 percent of total sales were to the public. Our review of the procurement history for the part showed that DCAA did not consider sales prior to 1990, when DoD purchased large quantities of the blade heaters for stock. In addition, we also found that the sales to the public were primarily to companies that performed overhaul functions on DoD aircraft. Accordingly, based on criteria at the time, the commerciality of the blade heater was questionable. Appendix E shows past and present criteria used for commercial items. As of result of the DCAA

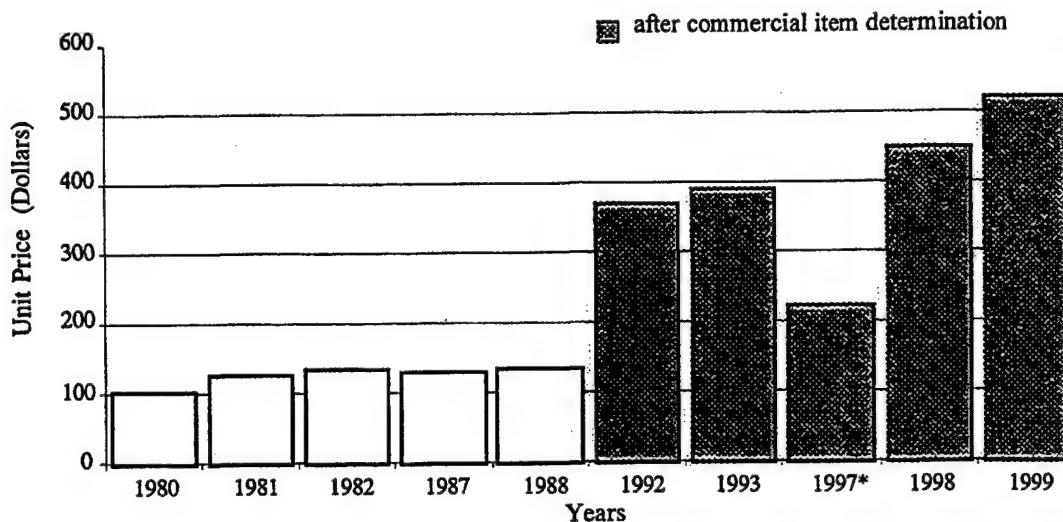
review, the contracting officer determined that the item was commercial and granted a waiver for exemption of cost data.

Blade Heaters for Military Use. Despite the commercial determination and changes in the commercial item definition, our review of the blade heaters indicated that the parts had very little commercial application. Sales outside the DoD were primarily for foreign military sales. Although there was a small percentage of sales to commercial customers, in most instances, DoD was the end user of the finished products acquired from those commercial customers. According to the Federal Aviation Administration there are 41 C-130s registered for operation by private companies. These companies procured the aircraft through the Government's surplus system. By contrast, over 2,000 C-130 aircraft were purchased for military use by either DoD or foreign countries. There are also 32 L382/L100s in operation (commercial version of the C-130 aircraft sold by Lockheed Martin). Although technically, according to the current commercial item definition, the blade heater may be considered a commercial item, no sufficient commercial market exists to ensure the integrity of the commercial prices. Since DoD dominates the market for the C-130 and P-3 blade heaters, and because the items are sole-source, there is no way to perform market research to properly price these parts commercially. Unless a vendor can show that a part used on the C-130 and P-3 aircraft is also used on a commercial aircraft in sufficient quantities to ensure the integrity of the price or was developed solely at private expense, commercial pricing should not be used to establish fair and reasonable prices. DLA contracting officers need to be made aware that means other than commercial pricing need to be used for parts used on the C-130 and P-3 aircraft to establish price reasonableness. Appendix C shows the production histories of the C-130 and P-3 aircraft.

Commercial Price Increases. Following the commercial item determination in April 1992, the prices for the blade heaters more than doubled when compared to previous prices paid. However, the DLA contracting officer accepted the significantly higher prices because, "Inasmuch as the proposed price is commercial, no formal negotiations were conducted." For example, in 1988, the price for the C-130 blade heater was \$132.60 as compared to the price of \$368 in June 1992 after the commercial determination was made. Similarly, the price for the P-3 blade heater in 1991 was \$254.00 as compared to the price of \$518.00 in October 1992. Negotiations for the C-130 and P-3 blade heaters did not use cost or pricing data because of the commercial item determination.

In August 1987, Hamilton Standard and BF Goodrich negotiated a licensing agreement that paid Hamilton Standard a [redacted] percent royalty payment for every blade heater that was sold, leased, used, or disposed of by BF Goodrich, which excluded sales made directly to Hamilton Standard. Thus, it was more beneficial for Hamilton Standard to use its subcontractor, Derco Aerospace, to procure the blade heaters from BF Goodrich for the virtual prime vendor contract.

Figures 3 and 4 show the significant price increases for the blade heaters after the commercial item determination.



*From March through October 1997, the price of the blade heaters for the C-130 dropped to [REDACTED] from the previous purchase price of [REDACTED] in 1993. However, the lower price on the virtual prime vendor contract was because Hamilton Standard had incorrectly priced the part at the price it paid when procuring directly from BF Goodrich, which excluded costs associated with royalty payments. Once royalty costs were included in the BF Goodrich price, the virtual prime vendor contract price was increased to [REDACTED] in November 1997.

Figure 3. Unit Prices for C-130 Aircraft Blade Heater Increased Significantly After the Commercial Item Determination

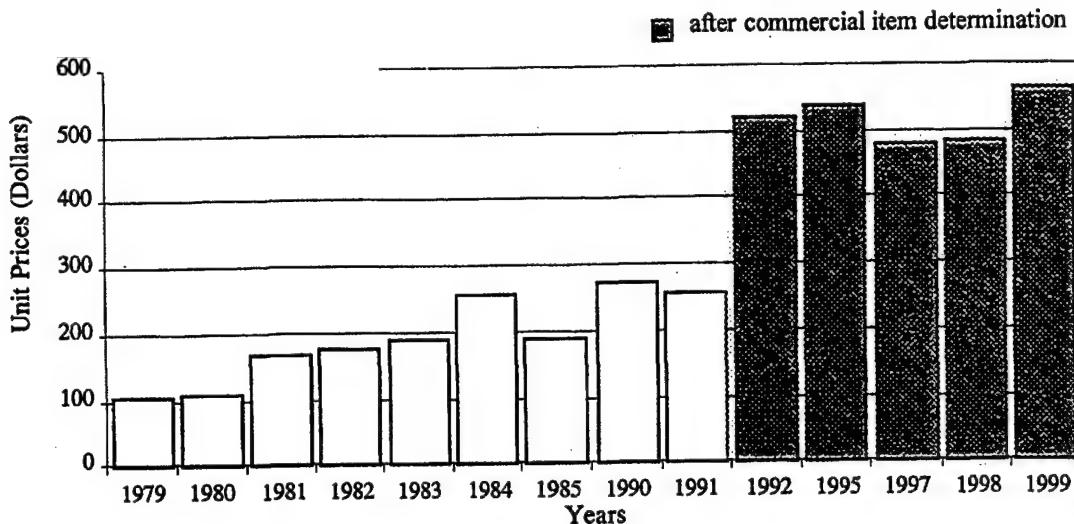


Figure 4. Unit Prices for P-3 Aircraft Blade Heater Increased Significantly After the Commercial Item Determination

Recommendations in previous audit reports have addressed the need for additional guidance relating to commercial items and the responsibility for contracting officers to question commercial item prices and negotiate fair and reasonable prices.

Cost Analysis for the C-130 Blade Heater. We recognize the difficulties DLA contracting officers have obtaining either certified (noncommercial items) or uncertified (commercial items) cost or pricing data from contractors in the current acquisition environment, in which other than cost-based approaches are stressed. Although DSCR cost and price analysts request uncertified cost data when deemed necessary, contractors routinely refuse to provide the data. This issue of using other than cost-based approaches has been discussed in the previous reports. We obtained information other than cost or pricing data (uncertified cost data) from BF Goodrich to determine a fair and reasonable price for the blade heaters. Based on the cost data, we calculated that a fair and reasonable price for a blade heater without royalties for the C-130 is [REDACTED] for 1999. We calculated that a fair and reasonable price with a royalty is [REDACTED] for 1999. The virtual prime vendor price of [REDACTED] was 173.1 percent and 146.5 percent higher when compared to the cost-based prices, differences of [REDACTED] and [REDACTED] respectively.

Table 1 shows that the VPV contract price for the C-130 blade heater was significantly higher than the fair and reasonable price. As shown, the VPV price of [REDACTED] included [REDACTED] to make the part and [REDACTED] in profit, royalties, and administrative costs.

Table 1. Excessive VPV Prices for C-130 Aircraft Propeller Blade Heaters

<u>Description</u>	Fair and Reasonable Unit Prices			
	1999 VPV Unit Price Percent	1999 VPV Unit Price Amount	Without Royalty Percent	With Royalty Percent
Cost Elements				
Labor	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Materials	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Overhead	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Subtotal	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Scrap	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total Cost	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
BF Goodrich Markup	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
BF Goodrich Sell Price	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Dercos/Hamilton Markup	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Dercos/Hamilton Sell Price	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
DLA Surcharge	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total User Price	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Costs Analysis for the P-3 Blade Heater. We also obtained information other than cost or pricing data (uncertified cost data) from BF Goodrich to determine the fair and reasonable prices for the P-3 propeller blade heaters. Based on the cost data, we calculated that a fair and reasonable price for a blade heater without royalties for the P-3 is [REDACTED] for 1999. We calculated that a fair and reasonable price with a royalty is [REDACTED] for 1999. The VPV price was [REDACTED] or [REDACTED] percent and [REDACTED] percent higher than the cost-based prices, differences of [REDACTED] and [REDACTED] respectively.

Table 2 shows that the VPV price for the P-3 aircraft blade heater was significantly higher than the fair and reasonable price. The VPV price of [REDACTED] included [REDACTED] to make the part and [REDACTED] in profit, royalties, and administrative costs.

Table 2. Excessive VPV Prices for P-3 Aircraft Propeller Blade Heaters

<u>Description</u>	<u>Fair and Reasonable Unit Prices</u>				
	<u>1999 VPV Unit Price</u>	<u>Without Royalty</u>	<u>With Royalty</u>		
<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>
Cost Elements					
Labor	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Materials	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Overhead	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Subtotal	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Scrap	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total Cost	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
BF Goodrich Markup	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
BF Goodrich Sell Price	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Derco/Hamilton Markup	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Derco/Hamilton Sell Price	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
DLA Surcharge	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Total User Price	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

To eliminate excessive payments for spare parts, DLA contracting officers need to negotiate fair and reasonable prices for the C-130 and P-3 aircraft propeller blade heaters.

Rights to Technical Data

Technical Data. Federal funding has supported research and development cost for the C-130 and P-3 aircraft since the programs began in the 1950s. Section 2320(a)(2)(A), Title 10, United States Code states, ". . . in the case of an item or process that is developed by a contractor or subcontractor exclusively with Federal funds, the United States shall have the unlimited right to: i) use technical data pertaining to the item or process; or ii) release or disclose the technical data to persons outside the Government or permit the use of the technical data by such persons." We requested that Hamilton Standard provide

a written statement concerning its position on the historical development and funding for the blade heater and whether it owned the rights to the data. In a memorandum dated July 22, 1999, Hamilton Standard did not address ownership of the rights to the data but rather their entitlement to the royalty payments for "technical know-how." Hamilton Standard asserts that a contractor or subcontractor is not prohibited from receiving a fee or royalty from a third party for information provided outside the purview of the Government contract as detailed in the following paragraph.

"A contractor will always retain the practical knowledge and experience gained over the years that gives it a competitive advantage. As a result, license fees and royalties are sought for know-how, trade secrets, training, personal visits, and information concerning shop practices and the accumulated technical experience and skills that have been acquired over the years that would give one the ability to produce something with the precision and accuracy necessary for commercial success. It is this "over and above information" for which a contractor or subcontractor is free to charge a fee or royalty when licensing a third party even if the underlying technical data associated with the license was developed with Federal funds."

Effect of Rights to Technical Data on Pricing. Although it remains undetermined exactly who owns the rights to the technical data for the blade heater, it impacts the pricing of a part. For example, if the contractor owns the rights to the data and is a sole-source supplier, the contract price may not be the best or most favorable price to DoD. Conversely, if DoD owns the rights to the data, multiple sources to manufacture the part could be established to obtain the most competitive price. Also, eliminating royalty payments and licensing fees associated with the rights to the technical data affects the price of the part. For example, eliminating the royalty cost of [REDACTED] for the C-130 blade heater could have avoided costs of [REDACTED] 2,716 bought in 1998) to the DoD. Since the 1980s, Warner Robins ALC unsuccessfully attempted to establish rightful ownership and/or purchase the data rights from Hamilton Standard for the C-130 propeller system. In a memorandum dated August 22, 1995, Hamilton Standard states, "We have no obligation to continuously update drawings, specifications, or our approved suppliers. Hamilton Standard is responsible for the quality of all flight critical hardware. For reasons of flight safety and corporate policy, we elect to retain these proprietary rights." We found no evidence that the issue was further pursued by Warner Robins ALC.

DLA needs to establish ownership rights to the technical data for the blade heaters to determine if Hamilton Sundstrand is entitled to a licensing fee for royalty payments.

Efforts to Reengineer the Blade Heater. In March 1999, Warner Robins and Hamilton Standard identified a potential replacement for the current blade heater made from thermion, a conductive fabric that promises significantly improved erosion and impact damage protection. The improved performance was to reduce the failures that occurred in the field and enable a change in the depot overhaul procedures. The projected return on the investment would be 29.2 percent over the first 10 years and 114.5 percent over the first 20 years.

In a memorandum dated August 6, 1999, the Navy addressed its efforts to pursue developing the thermion blade heater under the Component Improvement Program initiative with Hamilton Standard. The Navy is committed to procuring the new improved blade heaters once qualification testing is successfully completed.

Cost Model for Return on Investment. Based on the proposal prepared by Warner Robins, the cost to design, develop and test the prototype for the new thermion blade heater is \$300,000 and would be *funded strictly with Federal funds* [emphasis added]. The cost avoidance for the project over a 10-year period was calculated at \$8.8 million, as a result of reduction in manpower hours in the field and the number of overtime hours at Warner Robins for maintenance of the blade heaters. Warner Robins estimates that of the blade heaters that are used in a year, about 50 percent are replaced in the field while the other 50 percent are replaced during overhaul. The life cycle cost assumes that heaters are replaced by attrition at the current rate for the first 5 years and at 25 percent (of the current rate) thereafter. Thus, the 75 percent reduction in consumption of blade heaters was based on eliminating field replacements plus eliminating propellers inducted into overhaul for blade heater replacements.

Price of New Thermion Blade Heater. The unit cost for the new thermion blade heater was estimated at \$800 and would be installed by attrition. Recent discussions between Hamilton Standard and Warner Robins engineers disclosed that the price of the new thermion blade heater would be comparable to the VPV price of the old blade heater. Although there may be a difference in price for the thermion fabric material, the manufacturing costs for the new blade heater should remain relatively constant. Thus, the price of the new thermion blade heater should be similar to the cost-based price of the old blade heater.

To provide more accurate figures, Warner Robins needs to use the fair and reasonable unit prices for any cost models that show life cycle cost avoidance. Also, Warner Robins needs to verify the ownership of the technical data rights for the blade heaters with DLA before providing any prototype developments funds to Hamilton Sundstrand.

Royalty Payments to Hamilton Standard

License Agreement with BF Goodrich. DLA contracting officers were unaware of excessive licensing fees for royalty payments made to Hamilton Standard. In August 24, 1987, Hamilton Standard established a license agreement with BF Goodrich (formerly Safeway Products Inc.) to manufacture the blade heater and other parts for the C-130 and P-3 aircraft. Under this license agreement, Hamilton Standard received a royalty payment of [redacted] percent for every blade heater sold, leased, used, or disposed of by BF Goodrich, which excluded sales made directly to Hamilton Standard. For 1996 through the first quarter of 1999, Hamilton Standard received [redacted] in royalties from BF Goodrich for the parts on the license agreement. Of this royalty amount, Hamilton Standard received [redacted] for the blade heater for the C-130 and P-3 aircraft. Table 3 shows the amount of royalties received for the blade heater.

Table 3. Royalties Received by Hamilton Standard for Blade Heaters

C-130 Blade Heater	<u>BF Goodrich Net Sales</u>	<u>Royalties to Hamilton Standard</u>
1996	[redacted]	[redacted]
1997	[redacted]	[redacted]
1998	[redacted]	[redacted]
1999*	[redacted]	[redacted]
Subtotal	[redacted]	[redacted]
P-3 Blade Heater	<u>BF Goodrich Net Sales</u>	<u>Royalties to Hamilton Standard</u>
1996	[redacted]	[redacted]
1997	[redacted]	[redacted]
1998	[redacted]	[redacted]
1999*	[redacted]	[redacted]
Subtotal	[redacted]	[redacted]
Total	[redacted]	[redacted]

* Represents data for first quarter only.

Solicitation Provisions on Royalty Information. Federal Acquisition Regulation (FAR), part 27.204, Reporting of Royalties--Anticipated or Paid, states that a contracting officer shall insert a solicitation provision, 52.227-6, Royalty Information, in any solicitation that may result in a negotiated contract for which royalty information is desired or for which cost or pricing data is obtained under FAR, part 15.403. Specifically, provision 52.227-6 states that when the response to the solicitation contains cost or charges for royalties

totaling more than \$250, certain information shall be included in the response relating to each separate item of royalty or license fee.

Applicability of Provision to Commercial Items. The DLA contracting officers excluded a necessary provision from the solicitation because the blade heater was considered a commercial item. The DLA contracting officers were compliant with the laws and regulations since there was no requirement to obtain cost data for commercial items. However, had a cost analysis been performed on uncertified cost data, the payments for royalties would have been disclosed. We recognize the difficulties DLA contracting officers have obtaining either certified (noncommercial items) or uncertified (commercial items) cost or pricing data from contractors in the current price-based acquisition environment. As part of the Department of Defense, Inspector General's oversight role, we were able to obtain uncertified cost data from BF Goodrich to reveal the royalty payment costs.

If Hamilton Sundstrand is entitled to a royalty payment for the blade heaters, DLA needs to negotiate a fair and reasonable licensing fee.

Logistics Support

Procurement Through a Third Party. Rather than buying directly from BF Goodrich, and relying on its storage and distribution system, DSCR and DISC funded an unnecessary layer of management by procuring the blade heaters for the C-130 and P-3 through Hamilton Standard (Derco Aerospace) on the VPV contract. Not only does this increase the overall cost of the parts, it also delays the delivery time to customers. Furthermore, the prices obtained by Derco with BF Goodrich were much higher than the cost-based prices previously paid by the DoD. Since Derco serves only as a middleman, there is no value added to the contract.

Strategic Alliance on Purchasing Environments. The DLA and the Office of the Secretary of Defense have initiated efforts to improve contractual arrangements with selected major suppliers by exploring the attributes of a strategic alliance relationship. The strategic alliance goal is to provide the most effective logistics support by reducing the price of spare parts, decreasing response times, providing accurate forecasting, and efficient administration. To achieve these goals, a Rapid Improvement Team was formed to identify and classify the purchasing environments into the following categories: build to order, rapid response, replenishment and catalog. Classifying the blade heater as a replenishment or catalog item would provide lower prices to customers. See Appendix D for a detailed description of the different purchasing environments.

Replenishment Price for Blade Heaters. Based upon the uncertified cost data provided by BF Goodrich, we believe that a fair and reasonable replenishment price for the C-130 blade heater is [REDACTED]. The price does not include the Hamilton Standard royalty but does include a [REDACTED]-percent profit to

BF Goodrich and the 7-percent DLA surcharge. On the other hand, a fair and reasonable replenishment price with a royalty cost is [REDACTED]. We calculate that a 15-percent royalty payment to Hamilton Standard is fair and reasonable based upon the standard profit percentage for the aerospace industry. A replenishment price should be established for the blade heaters because of its high usage by a few customers. Since there is a constant monthly demand for the item minimal inventory is maintained because of the high turnover. During our July 1999 visit to BF Goodrich, there were approximately 200 blade heaters in stock while Warner Robins ALC had 130 blade heaters in stock. A long-term agreement with performance parameters and share-in-savings incentives is the preferred type of contract. The cost avoidance at the replenishment price ranges from \$595,945 to \$635,431 a year. We did not calculate a replenishment price for the P-3 blade heater because of low usage and periodic buys by multiple users in 1998. Table 4 shows the cost avoidance for the replenishment price compared to the contract price.

Table 4. Cost Avoidance for the Replenishment Method of Support for the C-130 Blade Heater

Annual Demand	Fair and Reasonable Prices*									
	1999 User Price			Without Royalty			With Royalty			
	Unit	Total	Unit	Total	Difference	Unit	Total	Difference		
[REDACTED]	[REDACTED]	\$1,002,612	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

*Includes the DLA 7 percent surcharge.

Catalog Price for Blade Heaters. A fair and reasonable catalog price without royalties for the blade heaters for the C-130 and P-3 is [REDACTED] and [REDACTED] while a catalog price with royalties is [REDACTED] and [REDACTED] respectively. These prices include a [REDACTED]-percent profit, a [REDACTED] percent inventory carrying cost, and the 7-percent DLA surcharge. A catalog price should be established for an item that has many different customers, utilizes the contractor's commercial distribution system, and makes the contractor responsible for stocking the item. While the C-130 and P-3 blade heater is primarily a replenishment part, a catalog price should also be established to support customers that require small quantity buys outside their normal monthly demand for emergency or unanticipated use. The cost avoidance at catalog prices range from \$331,628 to \$365,001 per year.

Table 5 shows the cost avoidance for catalog prices compared to the contract price.

Table 5. Cost Avoidance for the Catalog Method of Support for the C-130 and P-3 Blade Heater

Annual Demand	Fair and Reasonable Prices*							
	1999 User Price		Without Royalty			With Royalty		
Unit	Total	Unit	Total	Difference	Unit	Total	Difference	
C-130	\$507,701							
P-3	\$167,678							
Total	\$675,379							

*Includes the 25 percent catalog service fee and the 7 percent DLA surcharge.

Table 6 shows the annual cost avoidance at replenishment and catalog prices. We calculate that the DLA supply centers can reduce total ownership costs for their customers from \$5.6 to \$6.0 million during FYs 2001 through 2006 by using a combination of both cost- and price-based acquisition tools and negotiating a long-term contract using commercial practices with BF Goodrich.

Table 6. Annual Cost Avoidance for the C-130 and P-3 Blade Heater

<u>Purchasing Method</u>	<u>Total Contract Price</u>	Fair and Reasonable Prices			
		<u>Without Royalty</u>	<u>With Royalty</u>	<u>Savings</u>	<u>Percent</u>
Replenishment for C-130	\$1,002,612			173.1	146.5
Catalog for C-130*	507,701			118.5	97.2
Catalog for P-3*	167,678			115.0	94.2
Total	\$1,677,991			147.7	123.6

*Includes both the 25 percent catalog service fee and the 7 percent DLA surcharge.

Users of Blade Heaters. During 1998, Warner Robins ALC purchased 66.4 percent of the total quantities of blade heaters purchased from the VPV contract. Specifically, Warner Robins ALC purchased 1,803 blade heaters over 11 months while the other 60 customers purchased 913 of the total 2,716. Warner Robins ALC purchased an average of 163 blade heaters per month with the smallest quantity order of 65 in May and the largest quantity order of 245 in July, based on the usage figures in 1998. Meanwhile, the other 60 customers

purchased the blade heaters as needed. As a result, it is more practical and cost-effective to establish a fair and reasonable replenishment price for Warner Robins ALC and a catalog price for the other 60 users. For the P-3 aircraft, there were periodic purchases of 280 blade heaters by 16 different users in 1998. Thus, we determined that a catalog price for the P-3 blade heater was more appropriate.

Table 7 shows the quantities that were ordered and shipped for the C-130 blade heaters.

Table 7. C-130 Blade Heaters Ordered and Shipped in 1998

User		Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Warner Robins	Ordered	217	120	167	65	192	245	187	156	184	126	144	1,803
	Shipped	217	86	149	117	192	160	217	211	135	175	144	1,803
Other 60 Users	Ordered	196	54	49	165	64	58	84	54	108	31	50	913
	# Users	25	12	11	17	9	14	14	11	13	5	12	
Other 60 Users	Shipped	14	233	40	19	153	110	38	91	69	67	79	913
	# Users	3	29	9	6	18	15	7	17	12	7	17	
Total													2,716

DLA and its customers need to determine the most effective means of logistics support for the C-130 and P-3 aircraft blade heaters. Consideration should be given to adopting the logistics strategy from the ongoing efforts of the Rapid Improvement Team.

Summary

Issues still exist concerning the definition of a commercial item and the impact it has on spare parts pricing, particularly when sole-source items are involved. Furthermore, the disclosure of royalty information and the rights to technical data are areas that need to be addressed, especially if the part is considered a commercial item and could potentially affect price negotiations. To alleviate some of these concerns, the adoption of the logistics strategy of the Rapid Improvement Team will provide an equitable business relationship between DoD and the contractor while providing lower prices to the customers.

Management Comments on the Finding and Audit Response

Management Comments on Audit of a Single Part. The Defense Logistics Agency took exception to the isolation of a single part under the Virtual Prime Vendor effort. The Defense Logistics Agency commented that a market basket approach was used to negotiate prices, which revealed an overall savings under the virtual prime vendor concept in comparison to the same parts obtained using traditional contracting methods.

Audit Response. The C-130 blade heater was included in the market basket and the negotiated price was about █, in line with our calculation of a fair and reasonable price. However, the contract price for the first option year increased to \$446.30 and was determined fair and reasonable based on a price analysis performed on an Air Force contract with BF Goodrich in February 1996 for the blade heaters sold at \$406. (Even though the recommended negotiation range was \$208.85 to \$446.30 based on the Defense Contract Management Command review). The significant increase in price from the base year to the first option year should have prompted the contracting officer to request uncertified cost data or to negotiate a lower price based on the Defense Contract Management Command review. Accordingly, we reviewed the part in depth because it was obvious that it was overpriced. The overall virtual prime vendor contract with Hamilton Sundstrand is discussed in depth in our Report No. D-2000-098, "Spare Parts and Logistics Support Procured on a Virtual Prime Vendor Contract," March 8, 2000.

Management Comments on Supply Chain Management. The Defense Logistics Agency indicated that determining price reasonableness was difficult for this aftermarket item when comparing traditional cost analysis (unit cost for parts only) with commercial pricing methods for supply chain management efforts. These supply chain management efforts must also include an analysis of the overall contractor cost to manage and store a part and the savings achieved by reducing the Government logistics infrastructure. The Defense Logistics Agency commented that based on the Department of Defense, Inspector General analysis, the contracting officer used the Defense Contract Management Command to perform a cost analysis to determine price reasonableness. The Defense Contract Management Command analysis was used to reduce the price for the C-130 blade heater from \$649.60 to \$519.79.

Audit Response. While we recognize that there are additional costs associated with supply chain management, these costs need to accurately reflect the additional services provided. In the case of the blade heaters, the excessive supply chain management costs clearly were not warranted and were not supported by the additional services provided on the virtual prime vendor contract. We disagree that determining the price reasonableness is as difficult as stated by the Defense Logistics Agency. We recognize that there are additional costs associated with contractors managing and storing parts; however, these costs need to be in-line with the costs for DoD to manage the items. In regard to the price reduction from \$649.60 to \$519.79, we continue to believe that the \$519.79 price is unreasonable. Clearly, unless further reductions are achieved,

the Defense Logistics Agency will need to develop alternate blade heater supply sources as stated in the Defense Logistics Agency comments to the recommendations.

Management Comments on Royalty Clauses. The Defense Logistics Agency commented that the virtual prime vendor contract was awarded using the Federal Acquisition Regulation part 12 procedures for commercial items and thus the royalty clauses were properly excluded. The Defense Logistics Agency further commented that the contractor did not reveal this information during negotiations and contract award. However, the Defense Logistics Agency is attempting to determine royalty entitlement and applicable licensing fee for the C-130 blade heater.

Audit Response. The contracting officers were compliant with the laws and regulations of Federal Acquisition Regulation part 12 since there was no requirement to obtain certified cost data for commercial items. However, had a cost analysis been performed on uncertified cost data, the payments for royalties would have been disclosed.

Management Comments on Utilizing a Single Source of Supply. The Defense Logistics Agency commented that the value of the virtual prime vendor contract should be evaluated on the overall program impact to the Defense Logistics Agency and the customer (not the cost of one item). The Defense Logistics Agency commented that the basis of a single integrator for logistic support is the backbone of the Virtual Prime Vendor program concerning third party logistics and is an essential component in the acquisition reform initiative.

Audit Response. We acknowledge the push towards the use of third party logistics support to reduce Government inventory and infrastructure as part of the acquisition reform initiatives. However, we disagree with the Under Secretary of Defense for Acquisition, Technology, and Logistics and the Director, Defense Logistics Agency on the exact merits of the virtual prime vendor program, as it is being implemented.

Recommendations and Management Comments

- 1. We recommend that the Director, Defense Logistics Agency direct contracting officers to:**
 - a. Negotiate fair and reasonable prices for the C-130 and P-3 aircraft propeller blade heaters.**
 - b. Determine whether Hamilton Sundstrand is entitled to a royalty payment for the blade heaters and negotiate a fair and reasonable licensing fee accordingly.**
 - c. Determine the most effective means of logistics support for the C-130 and P-3 aircraft propeller blade heaters. Specifically, consideration should be given to adopting the logistics strategy from the ongoing**

efforts of the Rapid Improvement Team (replenishment and catalog purchasing environment) and eliminate the use of dealers that provide no added value.

2. We recommend that the Director, Defense Logistics Agency:

- a. Establish ownership rights to the technical data for the blade heaters particularly when Federal funds are provided for research and development.**
- b. Inform contracting officers that unless a vendor can show that a part used on the C-130 and P-3 aircraft is also used on commercial aircraft in sufficient quantities to ensure the integrity of the price, commercial prices should not be used to establish price reasonableness.**

Management Comments. The Defense Logistics Agency concurred or partially concurred with each recommendation and stated that the contractor is renegotiating the price, seeking a voluntary refund and developing alternate sources of supply for the blade heaters. The Defense Logistics Agency is investigating the ownership issue to the technical data with the goal of establishing full ownership of all technical data and attempting to determine royalty entitlements and applicable licensing fee for the C-130 blade heater. The Defense Logistics Agency also stated that it is establishing a strategic alliance with Hamilton Sundstrand based on the template established under the Allied Signal (Honeywell) Rapid Improvement Team that should determine the most effective means of logistics support for the C-130 and P-3 aircraft propeller blade heaters. The Defense Logistics Agency instituted specialized training on procedures to ensure commercial item price integrity to the entire acquisition workforce in October 1998.

3. We recommend that the Commander, Warner Robins Air Logistics Center:

- a. Use the fair and reasonable unit prices for the C-130 and P-3 aircraft blade heaters for any cost models that show life cycle cost avoidance.**
- b. Verify the ownership of the technical data rights for the blade heaters before providing any prototype development funds to Hamilton Sundstrand, and negotiate technical data rights in any prototype development project that will guarantee DoD adequate rights to ensure that future maintenance can be accomplished at fair and reasonable prices.**

Management Comments. The Commander, Warner Robins Air Logistics Center did not comment on the recommendations. We request that the Commander, Warner Robins Air Logistics Center provide comments in response to the final report.

Appendix A. Audit Process

Scope

Work Performed. We reviewed DLA procedures and support contract documentation for delivery orders issued by DSCC, DSCR, and DISC to Hamilton Standard under corporate contract [REDACTED]. Specifically, we reviewed the cost data (uncertified), royalty payments, commercial application, and the rights to the technical data to determine the price reasonableness for the C-130 and P-3 blade heaters. We reviewed NSN [REDACTED], part number [REDACTED], for the C-130 aircraft and NSN [REDACTED] [REDACTED], part number [REDACTED], for the P-3 aircraft on the Hamilton Contract [REDACTED] for 1998 and 1999.

Fair and Reasonable Prices. Fair and reasonable prices were calculated using BF Goodrich cost data (uncertified) based on standard costs, and from comparisons to the prices offered to Hamilton Standard and Derco. The cost data and updated price proposals were discussed with BF Goodrich in July 1999. A profit rate of [REDACTED] percent was used to calculate a replenishment price. A 25 percent stocking fee was added to the replenishment price to establish a fair and reasonable catalog price.

DoD-Wide Corporate Level Government Performance and Results Act (GPRA) Goals. In response to the Government Performance and Results Act, the Secretary of Defense annually establishes DoD-wide corporate level goals, subordinate performance goals, and performance measures. This report pertains to achievement of the following goal(s), subordinate performance goal(s), and performance measure(s):

FY 2000 DoD Corporate Level Goal 2: Prepare now for an uncertain future by pursuing a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. Transform the force by exploiting the Revolution in Military Affairs, and reengineer the Department to achieve a 21st century infrastructure. (00-DoD-2)

FY 2000 Subordinate Performance Goal 2.3: Streamline the DoD infrastructure by redesigning the Department's support structure and pursuing business practice reforms. (00-DoD-2.3)

FY 2000 Performance Measure 2.3.1: Percentage of the DoD Budget Spent on Infrastructure. (00-DoD-2.3.1)

FY 2000 Subordinate Performance Goal 2.4: Meet combat forces' needs smarter and faster, with products and services that work better and cost less, by improving the efficiency of DoD's acquisition process. (00-DoD-2.4)

FY 2000 Performance Measure 2.4.6: Reductions in the Acquisition Workforce (In percents). (00-DoD-2.4.6).

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals.

Acquisition Functional Area. Objective: Internal reinvention.
Goal: Minimize cost growth in major defense acquisition programs to no greater than 1% annually. (ACQ-3.4)

Logistics Functional Area. Objective: Streamline logistics infrastructure. Goal: Implement most successful business practices (resulting in reductions of minimally required inventory levels). (LOG-3.1)

Methodology

Use of Computer-Processed Data. To achieve the audit objectives we relied on computer-processed data from the DLA supply centers and Hamilton Standard to determine the audit scope. The computer-processed data were determined reliable based upon the significant number of contract actions we reviewed and compared to the data output from the supply centers. Although we did not perform a formal reliability assessment of the computer-processed data, we determined that the contract delivery order numbers, award dates, and amounts generally agreed with the information in the computer-processed data. We did not find errors that would preclude use of the computer-processed data to meet the audit objectives or that would change the conclusions in the report.

Audit Type, Dates, and Standards. We performed this program audit from July 1999 through October 1999 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

Contacts During the Audit. We visited or contacted individuals within the DoD, Hamilton Standard, Derco Aerospace and BF Goodrich. Further details are available on request.

Scope of Review of the Management Control Program. The adequacy of the DLA management control program was addressed in Inspector General, DoD, Report No. 98-088, "Sole-Source Prices for Commercial Catalog and Noncommercial Spare Parts," March 11, 1998, therefore, we did not review it further.

Appendix B. Summary of Prior Coverage

During the last 5 years, the General Accounting Office has issued two audit reports and the Inspector General, DoD has issued six audit reports discussing either logistics response time or prices for sole-source commercial and noncommercial spare parts in the Acquisition Reform environment.

General Accounting Office

General Accounting Office, Report No. NSIAD-99-90, "DoD Pricing of Commercial Items Needs Continued Emphasis," June 1999.

General Accounting Office, Report No. NSIAD-94-153, "Contract Pricing, DoD Management of Contractors with High Risk Cost-Estimating Systems," July 1994.

Inspector General, DoD

Inspector General, DoD, Report No. D-2000-098, "Spare Parts and Logistics Support Procured on a Virtual Prime Vendor Contract," March 8, 2000.*

Inspector General, DoD Report No. 99-218, "Sole-Source Noncommercial Spare Parts Orders On a Basic Ordering Agreement," July 27, 1999.*

Inspector General, DoD Report No. 99-217, "Sole-Source Commercial Spare Parts Procured on a Requirements Type Contract," July 21, 1999.*

Inspector General, DoD Report No. 99-026, "Commercial Spare Parts Purchased on a Corporate Contract," October 30, 1998.*

Inspector General, DoD, Report No. 98-088, "Sole-Source Prices for Commercial Catalog and Noncommercial Spare Parts," March 11, 1998.*

Inspector General, DoD, Report No. 98-064, "Commercial and Noncommercial Sole-Source Items Procured on Contract N000383-93-G-M111," February 6, 1998.*

*Only redacted versions of these reports will be available on the Internet at www.dodig.osd.mil/audit/reports.

Appendix C. Production History of C-130 and P-3 Aircraft

Production History of C-130 Aircraft	
<u>Year</u>	<u>Event</u>
1951	Studies initiated for the L-206 and proposal submitted to the United States Air Force for what would become the C-130.
1952	Production begins under the United States Air Force contract.
1956	Delivery of the first C-130A to the United States Air Force Tactical Air Command.
1958	Delivery of the first C-130A to an international customer.
1964	C-130H model makes first flight ("H" model, officially called Hercules and subsequent).
1964	Model 382 (L-100) Hercules first flight.
1965	First commercial Hercules (L-100) delivered to Continental Air Services.
1968	The 1000 th Hercules is delivered to the United States Coast Guard.
1976	The 1400 th Hercules is delivered to United States Air Force Military Airlift Command.
1978	The 1500 th Hercules is delivered to the Republic of Sudan.
1980	First C-130H-30 built is delivered to the Indonesia Air Force.
1983	Delivery of first KC-130T to the United States Marine Corps Reserve.
1984	First LC-130H Ski Hercules is delivered to N.Y. Air National Guard.
1985	Tunisia takes delivery of two C-130Hs and becomes the 56 th nation to operate the Hercules.
1987	The 1800 th Hercules aircraft, a KC-130T is delivered to the United States Marine Corps Reserve.
1987	Two L-100-30s are sold to China Air Cargo.
1990	Through first 100 days of Operation Desert Shield, C-130s deployed to Middle East.
1992	The 2000 th Hercules is delivered to Kentucky Air National Guard.
1992	Lockheed starts formal development of the C-130J Hercules.
1995	First C-130J-30 for United Kingdom Royal Air Force completes assembly and rolls off production floor.
1995	First C-130J for United States Air Force completes assembly and rolls off production floor.

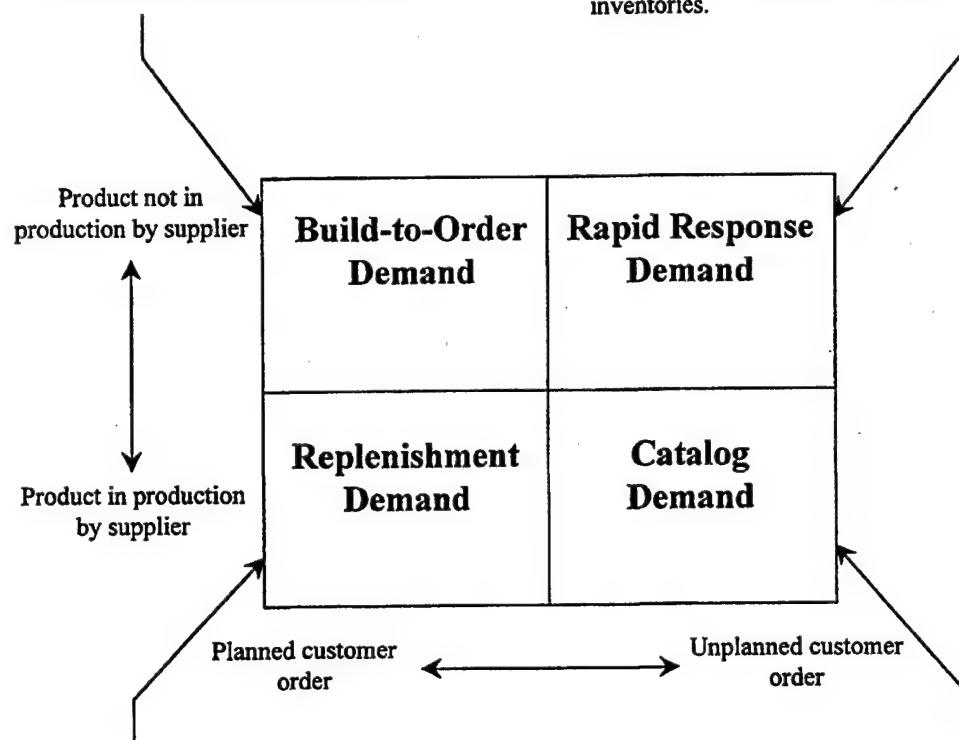
Production History of P-3 Orion Aircraft

<u>Year</u>	<u>Event</u>
1957	Lockheed proposes Electra to meet Navy requirement for land-based ASW aircraft.
1958	Research and development contract awarded.
1959	YP-3V-1 makes first flight.
1960	First production contract awarded.
1962/63	P-3s participate in quarantine of Cuba.
1966	New Zealand becomes the first international customer for Orion.
1968	First flight P-3C.
1969	Baseline "Charlie" first delivered to VP-26 at Naval Air Station Patuxent River, Maryland.
1970	VP-49 makes first overseas deployment with P-3C.
1975	Iran places order for six P-3F models.
1975	VX-1 takes delivery of first P-3C Update I.
1976	Canada orders first CP-140, combining P-3 airframe with S-3 avionics.
1977	First update IIs delivered to VX-1 and to NATC's Anti-Submarine Aircraft Test Directorate both at Naval Air Station Patuxent River, Maryland.
1978	Japan selects P-3 for maritime patrol needs and Kawasaki Heavy Industries receives license to assemble more than 90 airframes.
1988	First P-3 AEW aircraft delivered to Customs Service.
1990	Navy P-3s are the first BF Goodrich aircraft on patrol within 24 hours of Iraq's invasion of Kuwait.
1990	During Operation Desert Shield/Storm, Navy P-3 squadrons provide key support in the eastern Mediterranean Sea, Red Sea, Gulf of Oman, and Persian Gulf.
1990	To present, the P-3 Orion squadrons are still flying daily patrols in the region to support United Nations requirements.
1990	Republic of Korea contracts for eight P-3Cs to be assembled in Marietta, Georgia.
1992	The first Georgia-built Orion rolls out of final assembly.
1995	The first P-3C delivered to the Republic of Korea, Navy.

Appendix D. Purchasing Environments

Build-to-Order refers to demand for new or out-of-production products that can be responded to by the supplier "turning on production."

Rapid Response refers to demand for new or out-of-production products that can only be responded to by drawing on pre-built safety inventories.



Replenishment refers to demand that is ongoing by a relatively small number of customers who have forecastable demand.

Catalog refers to demand that is ongoing by a relatively large number of customers who order at different times and in varying quantities.

Note: Individual products may "operate" in more than one demand category at the same time.

Appendix E. Laws and Regulations on Commercial Items

The definition of a commercial item and the requirement for the submission of certified cost or pricing data has changed over the last ten years. The percentage of sales previously used by the Defense Contract Audit Agency to determine if an item is commercial is no longer used as criteria for current acquisitions.

Exemption from Submission of Certified Cost or Pricing Data. Prior to acquisition reform, the Federal Acquisition Regulation 15.804.3(c) provided that a contract proposal was exempt from the requirement for submission of certified cost or pricing data if the prices were based on, established catalog or market prices of commercial items sold in substantial quantities to the general public. Specifically, FAR 15.804-3(f) listed three categories of sales related to the established catalog price of commercial items sold in substantial quantities to the general public.

(2) Standard Form 1412 lists three categories of sales related to the established catalog price of a commercial item sold in substantial quantities to the general public: A, Sales to the U.S. Government or to contractors for U.S. Government use; B, Sales at catalog price to the general public; and C, Sales to the general public at other than catalog price.

(i) Sales to the general public are normally regarded as substantial if (A) Category B and C sales are not negligible in themselves and comprise at least 55 percent of total sales of the item.

Federal Acquisition Reform Act Changes. The Federal Acquisition Reform Act resulted in changes to FAR 15.403, "Obtaining Cost or Pricing Data," [formerly FAR 15.804, "Cost or Pricing Data and Information Other Than Cost or Pricing Data."] Specifically, FAR 15.403 exempts commercial items from the requirement to submit certified cost or pricing data but may require information other than cost or pricing data to support a determination of price reasonableness or cost realism. According to FAR 2.101, "Definitions," the current definition for commercial items is as follows:

"Commercial item" means -

- (a) Any item, other than real property, that is of a type customarily used for nongovernmental purposes and that
 - (1) Has been sold, leased, or licensed to the general public; or
 - (2) Has been offered for sale, lease or license to the general public.

Appendix F. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Technology, and Logistics*
Deputy Under Secretary of Defense (Acquisition Reform)
Deputy Under Secretary of Defense (Logistics and Materiel Readiness)*
Director, Defense Logistics Studies Information Exchange
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Auditor General, Department of the Air Force
Commander, Air Force Materiel Command
Commander, Warner Robins Air Logistics Center*

Other Defense Organizations

Director, Defense Contract Audit Agency*
Director, Defense Logistics Agency

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Other Defense Organizations (cont'd)

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Commander, Defense Supply Center Richmond*
Commander, Defense Supply Center Philadelphia*
Commander, Defense Contract Management Agency*
Commander, Defense Contract Management Agency, Hamilton Sundstrand*
Director, Defense Security Cooperation Agency
Director, National Security Agency
Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency

Non-Defense Federal Organizations

Office of Management and Budget
Office of Federal Procurement Policy
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Defense Logistics Agency Comments



IN REPLY
REFER TO
DLSC-P

DEFENSE LOGISTICS AGENCY
HEADQUARTERS
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FT. BELVOIR, VIRGINIA 22060-6221

FEB - 7 2000

MEMORANDUM FOR DIRECTOR, CONTRACT MANAGEMENT DIRECTORATE,
DEPARTMENT OF DEFENSE INSPECTOR GENERAL

SUBJECT: Audit Report on Spare Parts and Logistics Support Procured on a Virtual Prime Vendor (VPV) Contract (Project Nos. 8CF-1003.01 and 8CF-1003.02)

I am forwarding the Defense Logistics Agency's response for subject audits for your consideration. The C-130 VPV contract is the prototype effort to help move the Agency and DoD from a traditional parts management business to a more integrated logistics support structure. As with any prototype effort, not every aspect of this effort has been a success. Within the context of the current acquisition reform and logistics environment, however, DLA's analysis shows improved parts availability, zero returns due to quality, elimination of most local procurement buy-arounds, increased maintenance production, and enhanced customer-vendor communication. Coupled with the projected overall savings and a shift of formally held DoD inventory to supplier managed inventory and integrated logistics, the VPV program shows exciting promise as we shift to commercial practices.

The blade heater represents only 1 of 1,600 parts within the VPV market basket of parts. As such, the DoDIG should consider the overall program and potential savings. It is difficult to compare traditional cost analysis (unit cost for parts only as the DoDIG has done) with commercial pricing methods for supply chain management efforts. Any analysis of VPV must include an assessment of the overall contractor cost to manage and store a part and the savings achieved by reducing the Government logistics infrastructure.

The lessons learned on this prototype VPV effort represent the underpinnings of future VPV arrangements. The success of this type of innovative contractual vehicle will provide better, faster, and more economical ways of doing business in the 21st century.

Henry T. Glisson

HENRY T. GLISSON
Lieutenant General, USA
Director

Attachments:

1. Response to Project No. 8CF-1003.01
2. Response to Project No. 8CF-1003.02

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SUBJECT: Comments on Draft Audit Report, Office of the Inspector General, DoD, Project No 8CF-1003.02, November 24, 1999, Procurement of the Propeller Blade Heaters for the C-130 and P-3 Aircraft

Finding 1: DLA contracting officers did not effectively negotiate fair and reasonable prices for the C-130 and P-3 aircraft propeller blade heaters (blade heaters) procured as sole-source commercial items from Hamilton Sundstrand and BF Goodrich. Effective negotiations did not occur because DLA contracting officers:

- a) failed to conduct negotiations for the blade heaters after the commercial item determination was made and accepted the significantly higher commercial prices without obtaining some assurance that the prices were reasonable (for example, requesting cost data),
- b) failed to challenge the contractor on the rights to the technical data for the blade heaters and excluded solicitation provisions for royalty information, and thus were unaware of the excessive licensing fees for royalty payments that BF Goodrich paid Hamilton Sundstrand
- c) used unnecessary third party or DLA logistic support rather than using the actual manufacturer.

As a result, the DLA supply centers paid between \$927,483 and \$1.0 million or from 123.6 to 147.7 percent more than fair and reasonable prices for the blade heaters procured from Hamilton Sundstrand and BF Goodrich. In addition, Warner Robins Air Logistics Center (ALC) has initiated actions to provide research and development funds to Hamilton Sundstrand for the reengineering of a new (thermion) blade heater.

DLA COMMENTS: Non-concur.

Finding 1a: DLA takes exception to the isolation of a single part within the approximately 1,600 parts under the C-130 Virtual Prime Vendor effort. Prior to the execution of the basic C-130 VPV contract award, DSCR conducted a study of the entire market basket of VPV parts which revealed an overall savings in comparison with the same parts set obtained using traditional contracting methods. KPMG's business case analysis, conducted subsequent to the DSCR study, confirmed these results. The contracting officer negotiated the unit prices for these items based on a "market basket" approach which was consistent with the commercial contract designation. This approach consisted of a sampling technique focusing on the cost drivers (i.e. those items comprising 80 percent of the total value of the contract).

The blade heater is an exception to the overall VPV basket of parts and is being aggressively managed. Further decreases in this line item and others within the overall "market basket" contract pricing are anticipated. DSCR (as a result of its own findings, the KPMG BCA, and the DoDIG findings) has instituted an outlier management program which addresses parts pricing which may be higher than historical cost data/modeling predicts. For the blade heater (as a result of the DoDIG analysis) the DSCR contracting officer utilized DCMC to perform a cost analysis to determine price reasonableness. This cost information was utilized to negotiate a reduction in the price for the blade heater from \$649.60 unit price to \$519.79 unit price. However, even at the reduced price, price reasonableness of this aftermarket item was difficult to determine when comparing traditional cost analysis (unit cost for parts only) with commercial pricing methods for supply chain management efforts (which must include an analysis of the overall contractor cost to manage and store a part and the savings achieved by reducing the Government logistics infrastructure).

Finding 1b: The VPV C-130 contract was awarded using FAR Part 12 procedures, Acquisition of Commercial Items. As such, royalty clauses were properly excluded. DoDIG obtained information of which the contracting officer had no prior knowledge (including the royalty information and licensing fees related to this item). The contractor did not reveal this information during negotiations and contract award. That being said, the royalty issue has been a long standing conflict on the C-130 Blade Heater. As such, the issue/conflict was in existence prior to VPV and is not a consequence of the contract.

Finding 1c: The concept of the VPV test program is to utilize a single source of supply for total logistic support of a weapon system. The value of this program should be evaluated on the overall program impact to DLA and the customer (not the cost of one item). The basis of a single integrator for logistic support is the backbone of the Virtual Prime Vendor program concerning third party logistics and is an essential component in this acquisition reform initiative.

ACTION OFFICER: LCDR Jack Stem, USN, DLSC-P, 767-1425

REVIEW APPROVAL: D. H. Stone, SC, USN

Recommendation 1: Recommend that the Director, Defense Logistic Agency, direct contracting officers to:

- a. Negotiate fair and reasonable prices for the C-130 and P-3 aircraft propeller blade heaters.
- b. Determine whether Hamilton Sundstrand is entitled to a royalty payment for the blade heaters and negotiate a fair and reasonable licensing fee according
- c. Determine the most effective means of logistics support for the C-130 and P-3 aircraft propeller blade heaters. Specifically, consideration should be given to adopting the logistics strategy from the ongoing efforts of the Rapid Improvement Team (replenishment and catalog purchasing environment) and eliminate the use of dealers that provide no added value.

DLA COMMENTS : Partially concur.

Recommendation 1a : It is DLA policy and practice to negotiate fair and reasonable material and service prices. Established policy, DSCAP 15.8 dated July 1994, outlines rules and tools for conducting price analysis, conducting negotiations, and determining fair and reasonable prices. An evaluation by the DSCR contract review team of the C-130 VPV contract negotiation process established that the rules and tools outlined in the policy that was in existence at the time of award were followed. While disagreement may follow over individual NSN pricing on the prototype "market basket" approach in a prototype VPV contract, the contracting officer followed policy and procedure in making a "fair and reasonable" price determination.

Specific to the blade heater, (as a result of information discovered by DoDIG), the DSCR contracting officer is re-negotiating the price, seeking a voluntary refund, and developing alternate sources of supply.

Recommendation 1b: DLA is attempting to determine royalty entitlement and applicable licensing fee for the C-130 blade heater. This is a complex legal matter between the DoD and Hamilton-Sundstrand with no clear position on appropriate ownership rights. It should be noted that Warner Robins ALC has pursued this matter unsuccessfully in the past. As such, this issue existed prior to the VPV and is not a consequence of the contract. At this time, DLA is unable to

determine entitlement or non-entitlement. However, a letter has been drafted and forwarded to the President, Hamilton-Sundstrand requesting a voluntary refund for questionable costs identified prior to the DoDIG Audit or provide additional information to clarify their pricing.

Recommendation 1c: One of the primary concepts of the Virtual Prime Vendor program is the utilization of a single source of supply for total logistic support. DSCR, as stated above, is aggressively working to obtain better pricing for the blade heater while maintaining a single source of supply where it makes prudent business sense. The value of VPV should be measured by the overall program impact on DLA and the customer, not by unit price alone. DLA, the Air Force and Hamilton-Sundstrand are currently establishing a strategic alliance based on the template established under the Allied Signal Rapid Improvement Team.

DISPOSITION:

(X) Ongoing. ECD: Recommendation 1b: June, 2000. Recommendation 1c: October, 2000.
(X) Considered Complete: Recommendation 1a.

ACTION OFFICER: LCDR Jack Stem, USN, DLSC-P, 767-1425
REVIEW APPROVAL: D. H. Stone, SC, USN

Recommendation 2: Recommend that the Director, Defense Logistic Agency:

- a. Establish ownership rights to the technical data for the blade heaters particularly when Federal funds are provided for research and development.
- b. Inform contracting officers that unless a vendor can show that a part used on the C-130 and P-3 aircraft is also used on commercial aircraft in sufficient quantities to ensure the integrity of the price, commercial prices should not be used to establish price reasonableness.

DLA COMMENTS:

Recommendation 2a: Concur. DSCR is investigating the technical data ownership issue with the goal of establishing full ownership of all technical data. It should be noted that Warner Robins ALC pursued this matter unsuccessfully in the past. DSCR is also working to develop and qualify an alternative manufacturing source for the blade heater. This effort should result in more reasonable pricing for the blade heater in the future. Currently, as stated above, DSCR is renegotiating the price of the blade heater on this contract.

Recommendation 2b: Partially Concur. At the time of contract award, the contracting officer, in accordance with existing Federal Acquisition Policy, utilized a combination of commercial pricing available from the contractor and historical DoD pricing data in making the determination of price reasonableness. This commercial data was deemed sufficient to assist the contracting officer in making this determination. However, due to a general lack of information regarding the "sufficient quantities to ensure the integrity of price" for commercial items issue (raised during this and several other acquisition reform initiatives), DLA instituted specialized training to the entire acquisition workforce (2,700 people) in October of 1998.

DISPOSITION:

(X) Ongoing. ECD: Recommendation 2a: June, 2000
(X) Considered Complete: Recommendation 2b.

ACTION OFFICER: LCDR Jack Stem, USN, DLSC-P, 767-1425
REVIEW APPROVAL: D. H. Stone, SC, USN

RECOMMENDATION 3: Recommend that the Commander, Warner Robins Air Logistics Center:

- a. Use the fair and reasonable unit prices for the C-130 and P-3 aircraft blade heaters for any cost models that show life-cycle cost avoidance.
- b. Verify the ownership of the technical data rights for the blade heaters before providing any prototype development funds to Hamilton Sundstrand and negotiate technical data rights in any prototype development project that will guarantee DoD adequate rights to ensure that future maintenance can be accomplished at fair and reasonable prices.

DLA COMMENTS: Partially concur.
Recommendation 3a: While it is not DLA's intention to comment on the Air Force's determination of price reasonableness, it is DLA's position that determining fair and reasonable prices be linked to the overall DoD supply chain benefits and not solely on traditional unit cost analysis. As mentioned before, it is DLA's intention, within the current context of acquisition reform, to move the Agency toward better, faster, and more economical ways of doing business. This prototype VPV program is proving out the business case, resulting in an overall projected savings based on a shift of formally held DoD inventory to an integrated logistics support structure with supplier-managed inventory. These factors must be taken into account in any determination of fair and reasonable pricing for the VPV program.

Recommendation 3b: N/A

DISPOSITION:
 Ongoing ECD:
 Considered Complete

ACTION OFFICER: LCDR Jack Stem, USN, DLSC-P, 767-1425
REVIEW APPROVAL: D. H. Stone, SC, USN

Audit Team Members

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